

Chemical Week

Operational excellence

Argo - CW survey finds industry stepping-up focus on operational excellence, growth, productivity and safety are key priorities



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Industry steps up operational excellence

CW survey finds focus on growth, productivity, and safety

▶ Robert Westervelt and Jing Chen

Leading chemical makers are seeing renewed interest in operational excellence (OpEx) to drive improvements in safety, reliability, sustainability, and costs. Programs are shifting from targeted training, project, or functional-based efforts to use operational excellence to drive continuous improvement and changes in culture.

Leaders responsible for operational excellence at major companies, including BASF, Dow Chemical, Evonik, Albemarle, Nova Chemical, and Wacker Chemie, say operational excellence is playing more important roles in driving safety improvements, boosting margins, offsetting cost inflation with efforts expanding to initiatives such as M&A integration and digitization.

A CW survey of 51 industry operations and manufacturing executives found that more than 60% of respondents said spending on operational excellence has increased in the past three years and 36% said it was roughly flat. And 80% of responders said operational excellence efforts were linked to overall corporate strategy.

The top three operational challenges facing industry were growth, cited by 41% of respondents; productivity, 33%; and safety, 25%. Nearly two-thirds say OpEx programs are meeting cost-savings and productivity targets.

Upgrading OpEx

Dow Chemical says it is revitalizing OpEx programs that were largely established in the 1990s and still form the foundation of its global work processes today. “We’re now in the process of streamlining our operating discipline management systems to simplify where we can,” says Monty Heins, v.p. manufacturing and operational excellence for Dow Chemical. “We’re trying to get at the essence of the operational excellence elements that we want, maybe with a little less

bureaucracy.”

Health and safety takes the top priority in OpEx at Dow, Heins says. “Everything else is a distant second,” Heins says. “We look at metrics on injury, illness, and incidents closely. We’re particularly focused on what we consider potential life events.”

Reliability and productivity follow. “We look at overall enterprise and product supply reliability,” Heins says. “We measure value liberated from reliability, recognizing that not all metrics are created equal. We prioritize improvements that net the most benefit to the businesses and ultimately to earnings growth.” On productivity, Dow measures contributions that operations can make in terms of total cost of goods sold and potential impact on topline and bottom line. “We think about this in terms of the ‘hidden plant,’” Heins says. “We measure that using a metric called Maximum Asset Capability. We’ve seen that grow quite a bit over the last five years.”

Some of the key shifts involve moving the program beyond standardization of work processes. “We are working on a continuous improvement mindset and culture.” Dow has placed a continuous improvement leader at most of its key sites. “That person wouldn’t have been there five years ago. Site leaders, of course, still have key accountability for contributing to M&E productivity, but we have these continuous improvement roles in place now to help facilitate that.”

Digitization is the next big frontier, Heins adds. “Senior leadership at Dow is very focused on acceleration of digitization,” Heins says. “We have a team called the North Star team that is looking across the company from an industry 4.0 standpoint. It touches on several things, including mobility and wireless, data analytics, operations, advanced controls, and robotics. The key is to go faster.

Digitization certainly seems like a game-changer, in terms of how we can change the face of operational excellence and ultimately productivity.”

Core to strategy

OpEx is a strategic lever for BASF and the overall effort is core to strategy, says Detlef Kratz, BASF senior v.p./corporate technology and operational excellence. “It is a decisive

factor for our competitiveness and as a driver for sustainability.” BASF, for example, reports carbon dioxide mitigation derived from operational excellence projects.

Efforts distill to designing and running technical and organizational processes as effectively and efficiently as possible, Kratz adds. “We are constantly looking for improvement. Creating value without waste, or lean efforts, further developing process and organizational structures,

optimizing raw material and energy consumption are examples we pursue.”

BASF is seeing significant benefit, according to Kratz. “Those programs help us to mitigate cost increases from inflation and also help keep our company fit and agile as well as add to the top and bottom line,” Kratz says. BASF’s current operational excellence program, Drive, will run from 2016 to 2018, targeting an achieve an annualized earnings contribution of €1 billion by the end of 2018. “In 2016, we achieved an earnings contribution of €350 million and are well on track to meet our target,” Kratz says. “Drive includes measures in production, like debottlenecking, savings in variable and fixed costs.”

Evonik has put more emphasis on operational excellence, according to Michael Pack, member of the management board for Evonik Performance Materials. The company has a standardized operational excellence program, which has been operating under a new name SEEC (simplification, excellence, empowerment and cooperation) since last year. Pack says that the SEEC program has been expanded to include administrative services and related processes.



KRATZ: OpEx drives sustainability, competitiveness.



WILLEMS: Counteracts rising costs.

“SEEC offers a pool of experts that businesses can draw upon. They go upon our request to go into plan-specific and sometimes quite often site-wide related projects on a related scheme but steered by us as an operating segment. We hire highly qualified and highly motivated people. You can have the best tools, the best technical efforts, but without the right people to operate them, you will go nowhere. The skills and the people aspect are considered very important.”

The program is not one dimensional, he adds. “You have to bring everything together. Plant and product safety and compliance often go



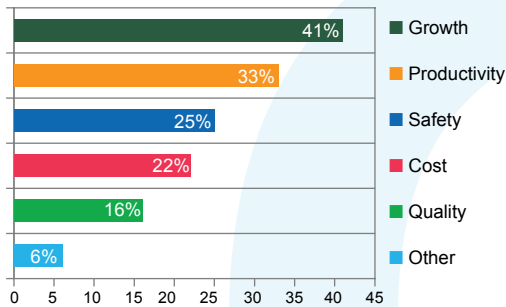
TOZIER: Driving focus on growth and productivity.

together,” Pack says. “They rank first. It’s our ticket to a long-term sustainable business,” Pack says. A key element is career-long training and skills building. “[Certain processes] will never get replaced by smart IT systems,” Pack says. Qualified talent can optimize plant operations and help avoid unplanned downtime. “We’re seeing too many unplanned maintenance events in recent years, compared to 15–20 years ago. I suspect it’s a mixture of poor maintenance and the skill levels of people going down,” Pack says. “I’m convinced the people factor is a decisive one in OpEx.” Pack says the potential for continuous

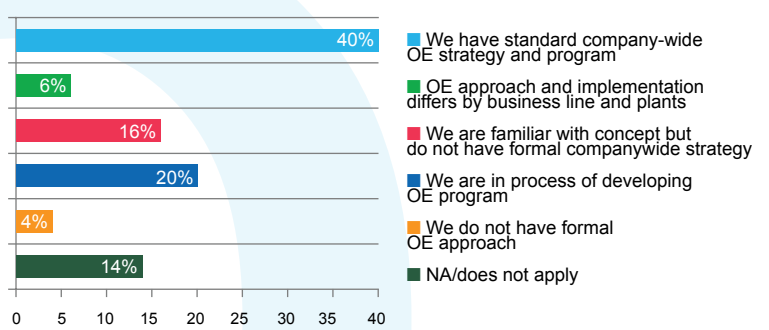
improvement is huge. “We will stay curious and impatient to improve what we do,” Pack says. “OpEx helps marry technology with people skills, and helps us become more profitable.” Ron Zumstein, senior v.p. of health, safety, and environment and engineering and operational excellence at Albemarle, says efforts in recent years have focused on programs to improve yields, throughput and cost. “We have created a lean culture across the company that has driven improvement in the safety of our operations, as well as producing our products ‘first-time right’ at a greater capacity,” Zumstein says. “Coupling process with a higher level of operating discipline has allowed us to be more effective and sustainable company.” Scott Tozier, Albemarle executive v.p. and CFO says OpEx efforts have allowed the

Operational excellence on the rise

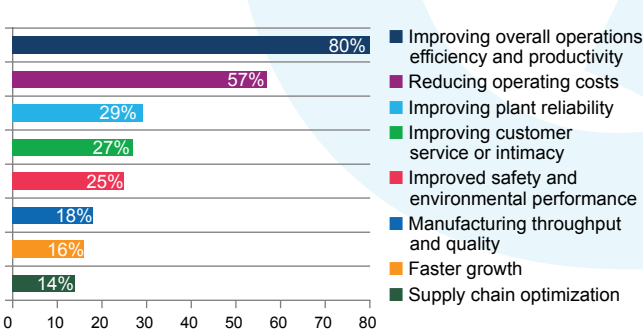
1 What is your company’s greatest operational challenge?



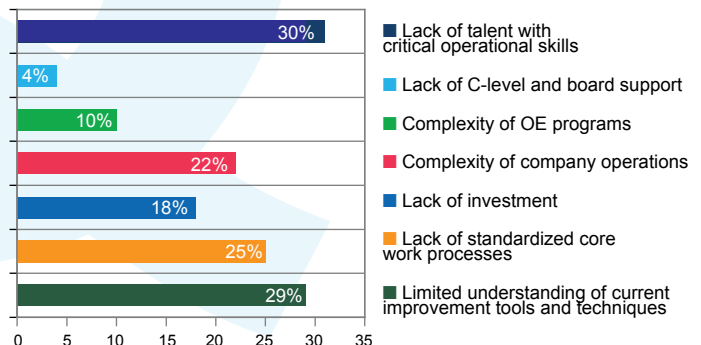
3 Which statement best describes the operational excellence approach at your company?



2 What are the most important operational excellence objectives at your company?



4 What are the biggest obstacles to achieving operational excellence?



company to become more sophisticated in efforts to integrate assets through M&A. “We are still early in that path for Albemarle as a whole,” Tozier says. “We are evolving and spreading operational excellence to the entire company and making it part of our day-to-day life and not just an event. We want everyone to think about growth and productivity at the same time—all the time. It’s a cultural shift.”

Albemarle looks closely at margin rates, increasing productivity, increasing cash flow, increasing the efficiency of capital spend, and reducing product costs. “It’s about looking at ways to reduce our back office costs, reduce working capital and improve product yields from our manufacturing processes—all accomplished with a focus on safety,” Tozier says.

OpEx challenges include trying to balance

multiple objectives, Tozier adds. “We are growing and we are also driving operational excellence, which oftentimes means reducing costs,” Tozier says. “We firmly believe that driving margin rate is just as important as driving growth, but that’s not always easy because they feel like competing priorities.” The efforts are meeting targets, he adds. “Ultimately it comes down to margin rates and that is something that you can see in our reported financials,” Tozier says. “We are hitting 30% EBITDA margins, up from 28% in 2016, and our long-term guidance is 32–35% EBITDA margins.”

Key priorities are successful implementation of an enterprise resource planning (ERP) system.

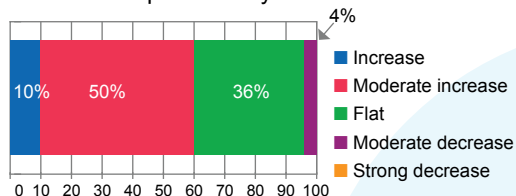
“ERP offers a lot of opportunity to become more efficient in our processes,” Zumstein says. “The second will be speed of execution to support growth.” One area of focus for the company is expansion to meet demand in high-growth lithium market. “The business demands that we execute expansions and plant improvements safely at an accelerated pace,” Zumstein says. “This will require our engineering, technical, and operations groups to collaborate and execute seamlessly.”



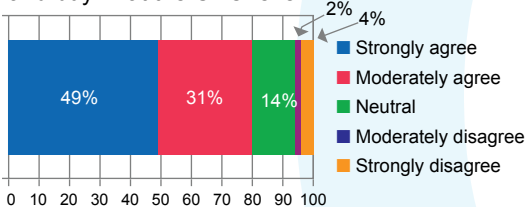
HEINS: Shifting to continuous improvement mindset.

Nova Chemical’s Arnel Santos, senior v.p., operations, says the core goal of OpEx is

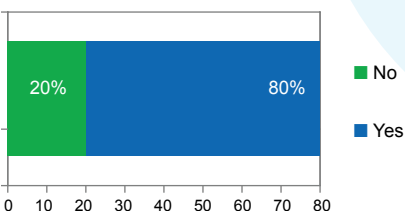
5 How has level of spending on operational excellence programs trended over past three years?



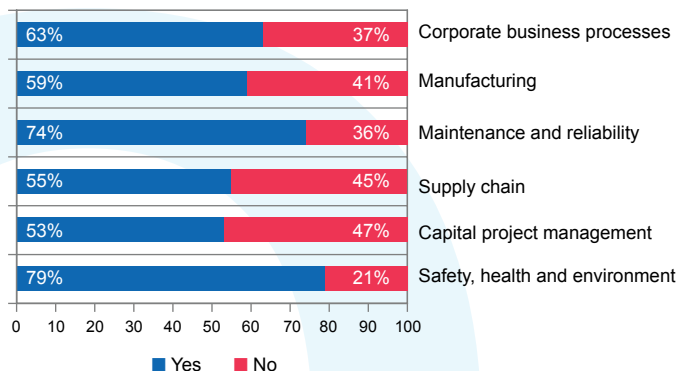
6 Operational excellence at my company have strong support and buy-in at the CEO level.



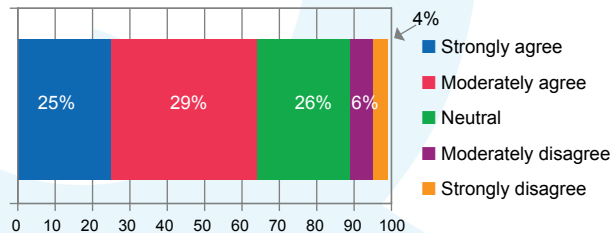
7 Is your operational excellence program and initiatives linked to your corporate strategy?



8 Does your organization have an evergreen operational excellence playbook of best practices for:



9 My company’s operational excellence program is delivering the annual productivity improvements and cost savings targets



Chemical Week teamed up with global operations consultants Argo Consulting (Chicago, Illinois) to survey chemical industry operations and manufacturing executives operational excellence programs. The survey received responses from 51 chemical industry operations and manufacturing executives.

establishment of sustained competitive advantage, “essentially a safe, reliable, and competitive world-class operation.”

Connecting OpEx with safety

“Safety, clearly, is important to us, and we want to explicitly connect operational excellence with safety performance, measuring lagging and leading indicators,” Santos says. “Reliability is crucial, given our

smaller footprint compared with competitors. We’re looking at planned uptime, downtime, utilization of assets, among others. That perspective on reliability is important. And, of course, we look closely at competitiveness. That includes fixed costs, variable costs, net cash margin on our assets, benchmarking, and using insights to drive improvement.”

Nova is looking to build parts on efforts and projects that have been successful in parts of

the company, Santos says. “The opportunity before us now is to leverage the positive experiences to create a consistent blueprint for Nova. That will sustain and build organizational capability on operational excellence and drive and sustain competitive advantage.”



PACK: OpEx helps companies become more profitable.

Industry efforts seem to be increasing as well, he adds. “I think there’s a renewed recognition of the value and an appreciation that this is no longer a flavor of the month or a management buzzword, but a real value generator and a game changer for the industry. That is being combined with the fast and furious development of technology and digital efforts from better data analytics. That was not available ten years ago.”

Auguste Willems, member of the Wacker executive board, says operational excellence is essential to counteract rising costs and improves the competitiveness of the company’s plants and production sites. This is critical in chemicals where energy and raw materials are major cost drivers. “An effective means to reduce these potential cost burdens is to improve the efficiency and productivity of our plants and processes,” Willems says.

The Wacker Operating System, a company-wide program operating for 13 years now, has been instrumental in improving the efficiency its plants and reducing specific costs. “Our efficiency programs are focused on the efficient use of raw materials, energy efficiency, productivity and plant availability,” Willems says. “Substantial productivity gains along the entire supply chain helped us to reduce specific operating costs year over year. In 2016, we implemented more than 700 efficiency and productivity projects throughout the Wacker group.”

Willems says that Wacker’s operational excellence programs saved the company more than €700 million in the last four years. “To continue this momentum going forward, we implemented production cost roadmaps for our main product lines. We also gained significant synergies by improving the energy efficiency of our plants. We plan to reduce our specific energy consumption to half of the 2007 by 2022.” ■

Operational excellence as value generator, game changer

▶ Charles Deise, Argo Consulting

Given the renewed appreciation for operational excellence, *Chemical Week* teamed up with operations improvement firm Argo Consulting (Chicago, IL) to survey executives on how OpEx has evolved, the most important focus areas, and the impact OpEx is having on their company.

Key findings are consistent with discussions with many of our clients who are currently rebuilding or enhancing their OpEx program, and they see it as a game changer to improve profitability and competitiveness. Most stated their companies had stronger OpEx programs years ago, but lost

focus on the initiative after the loss of talent and changes in the marketplace.

As the survey points out, critical skills and limited understanding of current tools and technologies are one of the biggest obstacles to success. Interestingly, the successful companies have gone beyond driving a company-wide best practice approach, and are now integrating lean thinking into their program to reduce complexity and waste. They are driving Leader Standard Work practices to improve work process consistency across the company.

The more advanced companies have taken it a step further and have built these practices into an operating management system—a more disciplined effort that starts with the right key performance indicators (KPIs) and balanced scorecards, and includes visualization down to the shop floor to provide real-time feedback. Many see the opportunity that digital technologies and analytics, which are just

beginning to develop, can provide. Leaders also realize the importance of driving a continuous improvement mindset and culture that would not have been there five years ago. Winning the hearts and minds of employees is key to sustaining improvements and the OpEx program into the future.

Environment, health, and safety (EH&S); reliability; and productivity are the top three priority areas for operational excellence programs. However, over 80% of respondents stated that their greatest challenge is to improve overall efficiency and productivity of their operations. Many point out that OpEx programs are key to driving improvements in overall



DEISE: Operational excellence is game changer to improve competitiveness.

asset effectiveness or maximum asset capability, and they have created capacity without capital through more efficient operations. A large proportion of the respondents stated that their OpEx program is giving them a better perspective on reliability and unplanned downtime and maintenance.

Results point to strong program buy-in from the CEO. 65% said their OpEx program is delivering annual productivity improvements and cost-savings targets, 60% said the level of spending on OpEx initiatives has increased over the past three years. 40% of the companies have a formal company-wide OpEx program. Many are putting a lot of emphasis on OpEx and are in the process of developing their blueprint. All formal programs are seeing increased productivity, better yields, and working capital reductions.

Charles Deise, senior v.p./operations, leads Argo's chemical processing industry practice.



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